



NATIONAL TRANSLATOR ASSOCIATION

OUR AIM – TO PROVIDE FM and TV SIGNALS in EVERY HOME

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STATEMENT OF THE NATIONAL TRANSLATOR ASSOCIATION

FCC BROADCAST ENGINEERING FORUM - JUNE 25, 2010

Introduction

The membership of the National Translator Association is made up of the people and organizations that own and operate the nearly 5000 rebroadcast TV translators and FM translators. The Association is dedicated to the provision of free over-the-air TV and FM to all areas that do not receive adequate coverage from a full compliment of primary stations.

Background

TV translators generally rebroadcast a single primary station 100% of the time that primary station is on the air. Locally inserted emergency messages and brief fund raising announcements are permitted under the FCC rules.

Translators most commonly operate by receiving the primary signal directly off the air from the primary station. It is also common for translators to use an input signal from another translator closer to the primary signal. Four translators in a chain are not uncommon and as many as seven repeats can be found. Four to seven translators at a site are common rebroadcasting a corresponding number of primary signals.

The use of frequencies in a translator served area is intensive, particularly as the input channel for each translator has to be protected in addition to keeping the output channel interference free.

It is not uncommon for the channel availability problem to be compounded by the need to use two or more translator installations to serve two or more nearby communities but where the terrain makes it impossible to serve multiple communities from the same site with the limited power and height generally available to translators. These complex translator systems have been painstakingly crafted or evolved overtime to cover areas with complex terrain when separate communities are close but in different valleys

Translator licensees may obtain a permit from the FCC to convert to digital operation, subject only to outgoing interference considerations. It is also possible, subject to channel availability, to get a permit for a companion digital channel. It is thus possible to introduce digital

television to an area while continuing the analog service in a manner analogous to the transition plan for full service stations.

TV translators that have not yet converted to digital output have been equipped with a digital demodulator that recovers the video and audio of the primary station and through the use of a conventional analog modulator, passes the program content along as a conventional analog transmission.

Low Power Television Stations (LPTV) live by same channel selection and interference rules as TV translators but don't have problem of protecting an input channel.

A few translators are carrying program streams from two primary stations. This requires recovering the video and audio from each station and re-encoding and combining into one bit stream. The cost of the encoding equipment is comparable to a second conventional one station translator and this plan is used only where an additional clear output channel is not available or some other consideration such as a structural limitation prevents the installation of a second translator. As more primary stations progress to transmitting multiple program streams it becomes progressively more difficult to fully replicate more than one primary station with a single translator in a six megahertz channel.

Digital translators can utilize the error correction feature built into the ATSC system and up to a point correct any defects in the incoming signal. These defects would typically be impulse noise or ghosts. In contrast to analog translators, which can not apply correction techniques, digital translators routinely rebroadcast a signal matching the quality of the original station.

There are approximately 8000 operating translators and LPTV stations. Their numbers are increasing as new LPTV stations are built and established translator systems add translators for additional primary stations and as holes in primary stations coverage are corrected. A special class of such fill in translators called "Replacement Digital Translators" was authorized by the FCC with priority status but can only be licensed to the primary station.

Many small rural cable systems depend on nearby translators for their input signals.

Fall Out Problems from Primary Station Changes.

If, as suggested in FCC documents, two primary stations combine to share one channel translators will pass the combined signal with both program streams. The translator served area will be impacted to the same extent as the direct viewers of the remaining primary station.

Any significant reduction in the height or ERP of a primary station can result in the loss of a useable signal at translator inputs. This is particularly a problem in the translator arena as many installations have been built well away from the primary station out close to the limit of primary signal availability. Over the years many translator operators have found primary signal "Hot Spots" at elevated sites near their community. These are the result of particular terrain features in the path from the primary station. Movement of the primary station may

well eliminate the “Hot Spot”.

The most common and simplest translators convert the primary station’s signal to a new frequency and rebroadcast it. However, input signal relays, both in the Broadcast Auxiliary Bands (microwave) and on vacant UHF channels are allowed under the FCC’s microwave rules (Part 74.6).

When and if the FCC forces primary stations to change channels the channels available for translator outputs in the region will also change. If the total number of TV channels is reduced the difficulty of finding replacement channels is increased. In this connection it should be noted that TV translators have been forced to vacate frequency bands twice already, TV translators were initially required to be in the then available band of channels 70 to 83. When these channels were reclaimed for other purposes in the early 1970's UHF translators were required to locate in channels 55 to 69. Now these channels are no longer in the TV band and soon all remaining translators in this band will be forced to find “in-core” channels. Over the years we have been kicked around more than a little.

The present web of translators has been painstakingly crafted over more than 50 years with a great deal of cut and try. Any changes to the installed base of primary stations and particularly the removal of spectrum from the TV broadcast use will cause difficulty for operating translators and inhibit the continued expansion of translator service to meet the as of yet unfulfilled needs.

Some relief from the problems associated with repacking of primary station channels may be found in the greater use of microwave relays. Simple justice will require that funding from the auction of reclaimed channels be made available to build microwave systems where the only remaining clear output channels would conflict with the normal direct reception of one or more input signals.

We would like to point out that the requested amount of spectrum could be obtained from frequencies above the broadcast band such as the 5000 MHz unlicensed area. It is accepted in numerous statements from the FCC and others that it is important to reclaim at least some of the spectrum from the UHF TV band because of the desirable technical characteristics of this band of frequencies.

Alternative Suggestion

We find it ironic that as recently as 20 or 30 years ago the UHF-TV frequencies were shunned by broadcasters because of the complexity and extra cost of equipment in the frequency band and the problems of delivering signals to homes without ERP’s far in excess of the levels required for VHF transmission. This all seems to have been forgotten.

Technical improvements which have come along with the increased demand and the passage of time have made it easier to work with these frequencies. We suggest that time and demand would produce similar technological improvements that would reduce the reluctance to use higher frequencies above the UHF TV band. This in turn would reduce or even eliminate the need to disrupt the digital TV broadcast system that has just barely been put in

place and before the industry has more than started the process of finding how to make full use of it.

We also note that certain channels in major metropolitan areas have been diverted to "Land Mobile" use. In these areas not only are the designated channels lost but also the adjacent channels. Thus for every such channel assignment three channels are lost. More recently twenty four megahertz in the upper 700 MHz range has been assigned to public safety (former TV channels 63,64 68 and 69). In addition the demand for commercial two way land mobile radios has been diminished by the available of lower cost cell phone service. Should the Commission actually move to reclaim one or more TV channels they should simultaneously return these diverted channels to TV broadcast use.

Conclusion

Any wholesale reassignment of primary TV channels will create major disruptions in TV translator served areas. Any reduction in the number of channels available for TV service will make it progressively more difficult for TV translators to fulfill their mission of making a full compliment of free over-the-air TV available in rural areas.

We urge the Commission to explore every alternative to disrupting the present primary station assignments and to proceed with extreme caution.

Respectfully submitted,



Dr. Byron W. St. Clair
President

Typical Multi - Channel Multi – Repeat Translator System

Systems typically carry six primary stations but systems exist with up to nine. Three to four transmissions are common but systems with seven retransmissions are in operation. With digital television the signal can be regenerated at each repeat and there is no signal degradation with multiple repeats.

